GEOGRAPHIC SCHOOL BULLETINS

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Willard R. Culver

IN THE SHADOW OF WAR, RUBBER TOYS PARADE INTO THE PAST

When Japanese invasion put a barrier between the U. S. and 98 per cent of the world's rubber, this country started a drastic program of conserving all accessible rubber supplies for life-and-death uses. Along with tires for pleasure cars, rubber bathing suits, and golf balls, rubber toys must take a back seat for the duration, releasing rubber for such essential things as hose to put out fires and tires for airplanes. Among the engaging playthings now on their way to becoming "antiques" are these rubber versions of Walt Disney screen characters, from Pinocchio's Figaro and the Big Bad Wolf to Snow White and Donald Duck. Virtually the only rubber growing within reach of the U. S. now is in Latin American countries (Bulletin No. 1).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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General Headquarters, Washington, D. C.

A Rubber Bond Cements Pan American Relations

THIS year the observance of Pan American Day, on April 14, finds the United States with an added incentive for bettering Pan American relations. The neighbor nations to the south are now, with the exception of plantations in Liberia, the best sources of commercial quantities of the natural rubber that U. S. war machines require to keep 'em flying, keep 'em rolling, and keep 'em floating.

Until Japan's invasion of Malaya and the Netherlands Indies, these regions had been for years the world's rubber reservoir, producing with Ceylon and French Indo-China nearly 98 per cent. Normally the rubber-hungry United States scooped up more than half of the world's supply. The five years preceding 1941 saw a yearly flow of 600,000 tons of rubber into U. S. ports (in 1941 a million tons), all except a small fraction of it from the Far East. Latin American countries in recent years have yielded only 2 per cent of world rubber output (18,000 tons in 1938), only 1 per cent of United States imports. But now Japan's advance has cut off the other supplies.

Three-Fourths of Rubber Became Tires

Uncle Sam needs natural rubber to mix with artificial rubber for war purposes. The Navy needs 75 tons of it for each battleship. The Army needs it for tank treads, the supports for pontoon bridges, gas masks, barrage balloons, tires for jeep cars. The air arms of both services need it for airplane tires, airplane wing filler, cushioning for parachutists, self-sealing gas tanks.

As this vital commodity is diverted to military needs, the motorist is becoming another vanishing American; he is now forced to use his feet more and his tires less. Between 72 and 77 per cent of all the rubber pouring into the U. S. has previously gone into the greatest rubber-consuming industry known, the manufacture of tires and inner tubes—in 1941 more than 61 million tires.

The shortage will also dictate that plump ladies may have to reduce or bulge. Suspenders and garters may disappear, with rubber toys (illustration, cover), erasers, and raincoats, or be replaced by artificial and reclaimed rubber. Rubber heels, formerly manufactured by the million; rubber boots, galoshes, and overshoes, once taking a twentieth of the nation's imports—these too will show the effects of war. The rubber famine will reach factories, where almost 10 per cent of the U. S. supply, as belting, turned the wheels of industry.

Amazon Natives Exported First Rubber Shoes to U. S.

Because of these needs, the U. S. looks southward again to that homeland of the rubber tree, the Amazon River basin. Brazil holds most of this rubber-rich region, whose fringes reach Bolivia, Peru, Ecuador, and Colombia. It was from this original source of commercial rubber, now dormant for years, that England in 1876 received the first seeds of the hevea (best of the various rubber tree species) that later started Far East plantations. From 15,000 to 60,000 tons of rubber a year may come from wild trees of the Amazon valley's steaming jungles. Plantations in Panama are a small additional resource.

The guayule shrub, a native of Mexico and Texas, is one of the few natural sources of rubber in North America. This supplies from 2,000 to 3,000 tons, with expansion on the way. Plans are also being carried out for artificial rubber.

Rubber has been known for centuries to Indians of the Americas. Spanish conquerors found the Aztecs playing games with rubber balls. Amazon natives

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Hawaiian Pineapple Co.

PLANTED IN PAPER, HAWAII'S PINEAPPLES COME OUT IN CANS

Orientals and some Polynesians work in the pineapple fields of Hawaii, which produced for export last year $54,000,000 worth of canned pineapple and juice. The rolling uplands of west Molokai (above), like the other islands, are striped with miles of gray-green plants which run in parallel rows back toward the mountains of the windward side of the island. After the land is plowed and fertilized, strips of mulch paper are laid in rows across the fields. Workers poke holes in the paper with sharp planting irons and stick the young pineapple plants in the holes. The paper, which lasts for one planting, keeps out weeds and regulates temperature. Molokai grows only a fraction of the pineapples for the canneries of Honolulu, which have furnished 80 per cent of the world's supply. Pineapples are second only to sugar in these mid-Pacific islands; they are a good team, for the fruit thrives on the dry upland slopes where cane would require more intensive irrigation, and the cane crop flourishes in the well-watered plains and valleys (Bulletin No. 3).

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New Zealand, Britain's Remote Larder, Mobilizes for Defense

AS JAPAN'S threat to the southwest Pacific grows greater, New Zealand—the eastern island neighbor of Australia—digs her defense heels deeper into her homeland soil and braces herself against invasion.

Before the days of long-range bombers, aircraft carriers, and submarines, this last lonely outpost of civilization, clinging like a barnacle to the under side of the globe, was securely isolated from aggressor nations by miles of cool blue seas. It lies 1,200 miles southeast across the Tasman Sea from Australia.

Cut in Half by Cook Strait

A land virtually cut in half by Cook Strait, New Zealand stretches 1,000 miles from the northern tip of North Island—with its semi-tropical climate, volcanoes, hot springs, and modern cities—down through the rugged, timbered, sky-piercing Southern Alps of "Little Switzerland" to the southern tip of South Island. In scenery, it has more variety for its size than any other country in the world. In climate, it has everything but extremes.

The inhabitants have the lowest death rate, the lowest infant mortality rate, and the longest life expectancy. There are no extremes of wealth or poverty. One out of every five inhabitants has a car (one out of seven only a few years ago). There is one telephone to every two homes. The 3,300 miles of railroads are government-owned.

Unlike Australia, which covers about the same area as the United States, New Zealand is only one-eightieth the size of the United States, or approximately as large as the State of Colorado. Its population of slightly more than 1,600,000, mostly of British and Irish descent, about equals that of Detroit. A third of the inhabitants are concentrated in the three leading cities of Auckland, Wellington, and Christchurch.

Leads World in Dairy Exports

New Zealand last year counted her Japanese population on the fingers of one hand with two fingers to spare. One was a storekeeper, another a captain of a river dredge, and the third, a teacher of jujitsu.

This small country is the world's largest exporter of dairy products, frozen mutton, and lamb; it is the fourth largest wool exporter. Britain depends heavily upon New Zealand for food and raw materials, taking over 90 per cent of her exports. During the first two years of war, the British received 254,000 tons of butter—enough to form a wall the height of a man, and 400 miles in length. One bale of wool for everyone in New Zealand, or 1,600,000 bales; 210,000 tons of cheese, which would make 1,000 miles of cheese crates end to end across both North and South Island; 598,000 tons of meat—these also traveled the 13,000-mile sea route to wartime Britain.

But while New Zealand, through her exports, feeds her mother country well, her own armed forces depend almost entirely upon outside countries for the tools of war. And as the battle moves down the seas closer to her home shores, New Zealand's defense pace quickens. Almost every man and woman of military age now serves in some war capacity. From the once peaceful pastoral lands and bustling cities, between three and four hundred thousand men and women have been mobilized. One out of every four men is in the armed forces. Sixty thou-

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made shoes, water jars, and balls of rubber. But not until the American Revolution did this valuable product find its way across the Atlantic to England. Its first use there inspired its name: it was used to rub out pencil marks. Indians had called it *cau-uchu*, after the "weeping tree" from which it dripped.

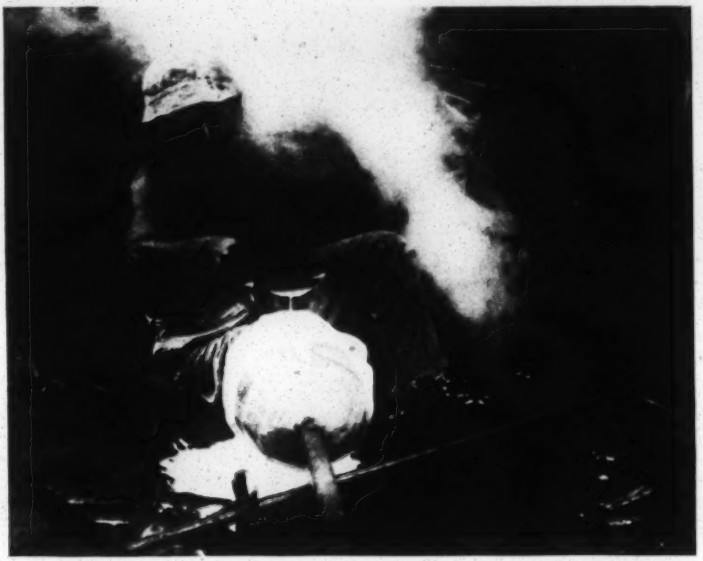
In 1803 an Austrian living in a suburb of Paris invented a rubber thread for suspenders. In 1820 the first rubber shoes came to the U. S. from the Amazon. In England, three years later, Charles Mackintosh waterproofed the first raincoat —the mackintosh. In 1830 the world used 156 tons of rubber, all from Brazil.

The first rubber factory in the U. S. opened in Roxbury, Massachusetts, in 1832. The industry took firm root, however, when another Massachusetts factory started in Springfield to carry out the ideas of Charles Goodyear. Here his all-important process of vulcanization—heating a mixture of rubber and sulphur—began. Before vulcanization, all rubber products melted and became sticky with summer heat, and winter blasts hardened them until unusable.

Since the invention of the automobile, rubber manufacturing has been one of America's leading industries. Akron, Ohio, now the largest rubber-processing center in the world, started humbly in 1870, when the small Goodrich rubber factory was moved there from Hastings-on-the-Hudson, New York. Last year, some 500 concerns in the U. S. were manufacturing rubber products and gave employment to more than 150,000 persons.

Note: For further information on rubber, see in the *National Geographic Magazine*, for February, 1940, "Our Most Versatile Vegetable Product."

Bulletin No. 1, April 13, 1942.



Hugh B. Cott

BRAZIL'S WILD RUBBER BOUNCES BACK INTO PROMINENCE

Frenchmen exploring the Amazon found the natives making bowls, moccasins, and quivers for poison darts of an unbreakable, waterproof material known as *cau-uchu*. Products of this native industry included a crude raincoat sent to the king of Portugal. Early rubber sold for $175 a pound. As late as 1910 Brazil (with other wild rubber) supplied 90% of the rubber the world used, or 83,000 tons. But in 1876 Sir Henry Wickham had launched seeds of the rubber tree on a voyage that would make the Far East supply 98 per cent of the world's rubber. Now Japan's invasion of Oriental sources has turned the U. S. toward the Amazon basin. Natives there collect the milky sap from wild rubber trees and make balls of it weighing up to 50 pounds for shipment. This Brazilian living near the Amazon's mouth ladles the sap from a pan and pours it over a pole; as each layer adheres to the growing ball, he hardens it by smoking it over a palm-nut fire.

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Hawaiian Islands at Pacific Crossroads

WITH the steady advance of United States aid to Australia, Uncle Sam is attaching increased military importance to Hawaii, "Paradise of the Pacific." Since the loss of U. S. bases to the west, Hawaii has become the major Pacific outpost for the United States Army and Navy and their air forces.

This outlying territory, popularly associated with ukuleles and hula dancers until Pearl Harbor brought grimmer pictures, dominates the sea lanes from Japan and Australia to the United States. Honolulu, the capital, lies 2,100 miles west of California and 3,800 miles northeast of New Zealand.

More Than a Third of People Are Japanese

The islands, aggregating 6,500 square miles (slightly larger than Connecticut), form the only sizable group in the northern Pacific. In a setting of tropic vegetation on Hawaii, the largest island, rise the volcanic mountains, Mauna Kea (13,825 feet high, loftiest island mountain in the world), and Mauna Loa (13,671 feet), whose craters, including Kilauea, 4,000 feet up the mountain, burst forth in periodic spectacular eruptions.

The islands have a population of about 423,000, of whom more than a third are of Japanese extraction. There are 108,000 whites, about 65,000 Hawaiians, 50,000 Filipinos, and 35,000 Chinese and Koreans. Island-born, some four-fifths of the Oriental population are U. S. citizens.

The island of Oahu, including Honolulu with nearly 200,000 inhabitants, the naval base at Pearl Harbor, and several army posts, has the densest population. Maui, with 50,000 inhabitants before the outbreak of war, consists of two unequal mountainous parts joined by a narrow isthmus. It is less than 730 square miles in area. In the larger section the huge extinct crater of Haleakala rises more than 10,000 feet above sea level, and is 21 miles in circumference.

U. S. Influence Increased by Arrival of Missionaries

According to Hawaiian legends, castaways, supposedly Spanish, reached the islands about 1527, but there is no historic record of white visitors until Captain James Cook, English seafarer, discovered them in 1778 and named them the Sandwich Islands in honor of the fourth Earl of Sandwich. After the American Revolution the islands became a stopping place for trading vessels sailing to the Orient, pirates, and a variety of other adventurers, but there was no permanent white settlement until the ship *Thaddeus* from Boston brought the first American missionaries. The predominant religion is therefore Christian, although there are numbers of Buddhists, and many old Polynesian superstitions still persist.

The presence of the missionaries was a factor in preventing European nations from taking over the Hawaiian Islands, which became an integral part of the United States in 1898, by treaty rather than by purchase or conquest. The islands are in no way an "insular possession," although the governor is appointed by the U. S. President. For Hawaii has its own Senate and House of Representatives, and has a delegate to the U. S. Congress elected every two years.

The U. S. Army and Navy, now charged with defense of the islands, have their bases on Oahu. On the southern shore, six or eight miles west of Honolulu, is the naval base of Pearl Harbor. Large enough to shelter the entire U. S. Fleet, this clover-leaf-shaped group of "lochs" is 60 feet deep and 10 square miles in area.

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sand soldiers serve in foreign fields. Forty thousand women are in the Women's War Service Auxiliary.

Historically speaking, New Zealand is still a youngster. It is little more than a hundred years since the English first hoisted the Union Jack there. Maori natives, however, now 5 per cent of the islands' population, came bobbing over the seas from Tahiti and settled on the islands early in the 14th century; Kupe, a Polynesian sea rover seeking a lost son, had found the island some 400 years earlier. Abel Tasman, whose Dutch employers gave the island its name—Nieuw Zeeland—saw the lofty peaks and pluming volcanoes in 1642, and Cook about a century and a quarter later explored the land. Numerous whalers, traders, explorers, and missionaries touched New Zealand before the first boatload of English colonists arrived to become permanent landholders.

In addition to the two main islands—North and South—Stewart Island off the tip of South Island, the Cook Islands approximately 2,000 miles northeast of the capital city of Wellington, and several smaller islands off the eastern coast are included in this British dominion.

Note: For further information on New Zealand, see the following articles in the *National Geographic Magazine:* "The Making of an Anzac," April, 1942; and "New Zealand 'Down Under'," February, 1936.

See also the following GEOGRAPHIC SCHOOL BULLETINS: "'Front Line' for Australia and New Zealand is Southeast Asia," January 6, 1941; and "New Zealand: Australia's Sister Dominion," February 12, 1940.

New Zealand is shown on the National Geographic Society's Map of the Theater of War in the Pacific Ocean. A price list of maps may be obtained from the Society's headquarters in Washington, D. C.

Bulletin No. 2, April 13, 1942.

Thelma R. Kent

THE SHEEP-EATING PARROT IS A TWO-FACED MOUNTAIN OUTLAW

About the only thing New Zealand's green mountain parrot could say was "kay-ah"; so settlers named it the *kea*. A sociable inhabitant of lonely mountain heights, the bird sometimes follows mountain-climbers as if for company. When tin-roofed huts were built, the *kea* immediately took to the sport of sliding scratchily down the metal slopes, to the annoyance of occupants. Since the white man brought his flocks to the New Zealand hillsides, the *kea* has developed a fondness for mutton. The bird may pounce on a sheep and dig its curved beak into the back to taste the kidney fat. Now the *kea* is an outlaw to be shot on sight, for protection of New Zealand's chief industry—sheep-grazing. Most of these birds have been killed off.

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The Tin Can: A Trash-to-Treasure Success Story

THE tin can is 98½ per cent steel. An all-tin container would be too expensive and too soft. The tin is only a metal "skin" 1/10,000 of an inch thick surfacing the can inside and out. But even this hairbreadth thinness takes 27,000 tons of the shiny white metal for the billions of cans the United States makes in an average year, or more than a third of all the tin imported.

Like rubber, tin reached the United States in the greatest quantities from Far Eastern tropics now overrun by the Japanese. Before the war this country obtained 90 per cent of its tin supplies from the Netherlands Indies and Malaya. Like rubber again, tin now promises to supply U. S. needs most generously from Latin American sources. In 1940 Bolivia was the world's second largest producer. But for cans alone the United States has used more than Bolivia normally mines. That is why the tin can, now subject to priority orders, is becoming rarer in some sizes and giving way to glass.

Prominent in the debris of battle today are tin cans. They strew the Libian desert for miles around each encampment. In cases they tower along the docks of American ports on their way to provision expeditionary forces from Ireland to Australia, to fill the 10,000 secret storage depots of England's lend-lease food supply. Special "iron rations" for U. S. armies on the march consist of six 12-ounce tin cans for every man; they contain biscuits, sweetened coffee, chocolate, beef stew, beans, and spaghetti. American soldiers during the World War partially buried France under some 590 million cans emptied of milk, fish, and vegetables.

From 60 Canisters a Day to Sixteen Billion a Year

Tin containers for flares, gas masks, bomb fuses, blasting caps, powder, and anti-tank mines are part of an army's non-edible provisions. Grease and anti-freeze in tin cans supply armies-on-wheels as well as those on wings. Anaesthetics, disinfectants, pills, and drugs in cans accompany the sign of the Red Cross.

Americans earned their "tin-eating" reputation from the nation's output of more than 16½ billion tin cans annually, or about 120 a year for each man, woman, and child. Infants are good customers at the tin counter, as milk takes more cans than any other food, since Borden patented the "tin cow" in 1856. Some 80 per cent of the cans hold food or beverages, as differentiated from such non-food contents as paint, motion picture films, talcum powder, or tennis balls.

About 95 kinds of food, cooked up in 300 variations, appear on the tin can menu. From bacon to veal, there are three dozen kinds of meat, with such possibilities as turkey, pig's feet, or squab. More than 40 soups are ladled into tin, including turtle, onion, potato, oxtail, and mulligatawny. Enchiladas, goulash, minestrone, and chow mein offer the tin can cupboard an international flavor.

About 20 sizes of cans are used for fruits and vegetables alone, varying from 4 ounces to more than 6 pounds. The cost averages two cents. All are made by an assembly line of machines which rapidly cut each can's "body blank" from a shiny sheet of tinplate, bend the flat blank into a cylinder, solder the side seam, bend outward the top and bottom edges, add the bottom and tuck in the

This BULLETIN supplies information for use with the U. S. Office of Education Handbook, "What the War Means to Us": Unit IV, Section II, A, 2, Restricted use of materials needed for war.

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On the central plateau of the island, between the Koolau mountain range that borders its northeastern side, and the Waianae range that rims the opposite shore, is Schofield Barracks, largest U. S. army post before the war. Fort Shafter, headquarters of the Hawaiian department of the Army, Fort Armstrong, quartermaster post, and Fort Ruger, crouching by Diamond Head, and Fort de Russy are all in Honolulu. Among the island's air fields are Hickam Field, at Pearl Harbor, and Wheeler Field at Schofield. Gun emplacements and air raid shelters dot the island at strategic points, and extinct craters hold rifle ranges.

Honolulu itself is a typical American city with a fine harbor, excellent shops, a university whose white buildings glisten in the sun, spacious hotels lining Waikiki Beach, and here and there picturesque reminders of the Orient and the South Seas. In the past, Honolulu has been the tourist's paradise, where he has ridden surfboards and outrigger canoes, lounged on the coral sand, and, draped in sweet-scented flower *leis*, has danced to plaintive music under banyan trees and the Southern Cross.

Note: The Hawaiian Islands are shown on the National Geographic Society's Map of the Pacific Ocean, on which a special inset includes Pearl Harbor.

For further information on Hawaii, see in the *National Geographic Magazine* for October, 1938, "Hawaii, Then and Now."

Bulletin No. 3, April 13, 1942.

W. Robert Moore

THE ROAD TO KILAUEA CRATER CUTS THROUGH TOWERING TREE-FERNS

Rising over 4,000 feet on its 30-mile climb from the seaport of Hilo to that most spectacular of all volcanoes—Kilauea—this modern road winds through the thick green gloom of giant tree-ferns which often reach a height of 35 or 40 feet. The fronds, while retaining some similarity to those of small ground ferns, grow into large and thick branches. In peace time over 60,000 tourists annually travel through this feathery oasis among old lava flows to visit the still active volcano. Kilauea is a crater roughly three miles in diameter gouged out of the slope of Mauna Loa and is the most dramatic spot in the Hawaii National Park. Created by the government in 1916, the park covers some 300 acres on Hawaii, the island from which the group takes its name, and which is locally called "the Big Island."

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Geo-Graphic Brevities

KOBE IS CENTER OF JAPANESE SHIPYARDS AND SHIPPING

JAPAN'S excellent deep-water harbor of Kobe is one of the Orient's great ports and shipbuilding centers. Both merchant ships and naval vessels have slid down the ways of Kobe's vast shipyards. The city's facilities are especially valuable in naval campaigns such as Japan has launched in the southwest Pacific.

Until 1938, when Yokohama took first honors, Kobe was Japan's leading port for foreign trade. On the Inland Sea at the head of Osaka Bay, it commands the trade of a great part of central Japan, especially that of the industrial metropolis of Osaka, less than 20 miles eastward. Tokyo is 300 air miles northeast.

Somewhat western in appearance, Kobe is one of Japan's six largest cities. Its population approaches a million. The center of the country's match industry, it also makes textiles, hardware, paper, glass, and electrical equipment.

The city stretches like a ribbon along a narrow coastal strip between the sea and wooded hills, called locally the "Kobe Alps" (illustration, next page).

ANDAMAN ISLANDS: STEPPING STONES FROM BURMA TO INDIA

In seizing the Andaman Islands, Japan made her first step from Burma toward India. The islands lie in the Bay of Bengal, 750 miles north of the Equator, about one-third of the way from the Malay Peninsula to the east coast of India.

There are 204 islands in the group—the largest about 50 miles long, the smallest mere points of rock. The five largest isles, in a cluster called collectively the Great Andaman, form a mass of jungle-covered hills and narrow valleys.

Andaman natives are relics of a pigmy race, long isolated from civilization. They live by bow and arrow, with which they fish and hunt small wild pigs.

The Andamans were known to the Arabs in the 9th century, and to Marco Polo. In 1789 a colony of convicts from India was established there. Since 1921, however, convict labor has been abandoned in favor of voluntary agriculture.

Port Blair, on South Andaman Island, is the principal settlement and the capital for the Nicobar Islands to the south as well as for the Andaman group.

The Andamans are a fine example of mountain ranges that extend under water, arching up in places like the back of a "sea serpent" to emerge as islands. They are a continuation of the Arakan Yoma mountain range of Burma.

MILAS, HIT BY BOMBS, MISSED BY TURKISH BOOM

Why should Milas, unimportant town in southwestern Turkey, be bombed? News dispatches in March reported an accidental British attack on this town of 10,000 people, among orange and lemon groves at the foot of a mountain.

Milas is 15 miles inland from Turkey's jagged coast where the Aegean Sea merges into the Mediterranean. These shores are fringed by the Italian-held Dodecanese Islands. The largest of these is Rodi (Rhodes), 65 miles south of Milas, an important Axis base recently attacked by British bombers and warships.

Before the first World War Milas was a minor center of carpet weaving in the old Turkish Empire. Unlike other cities in Turkey, it has expanded little with the growth of the republic. Milas is 35 miles from the nearest railway. The region is agricultural, producing figs and oranges, and tending silkworms.

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edges, test the can for airtightness, and toss off 350 completed cans a minute. The cannery adds the top.

Peaches, mostly from California, and pineapples from Hawaii vie for first place on the canned fruit list, each with more than 11 million cases in 1940. Pears follow, and six other fruits also filled more than a million cases each.

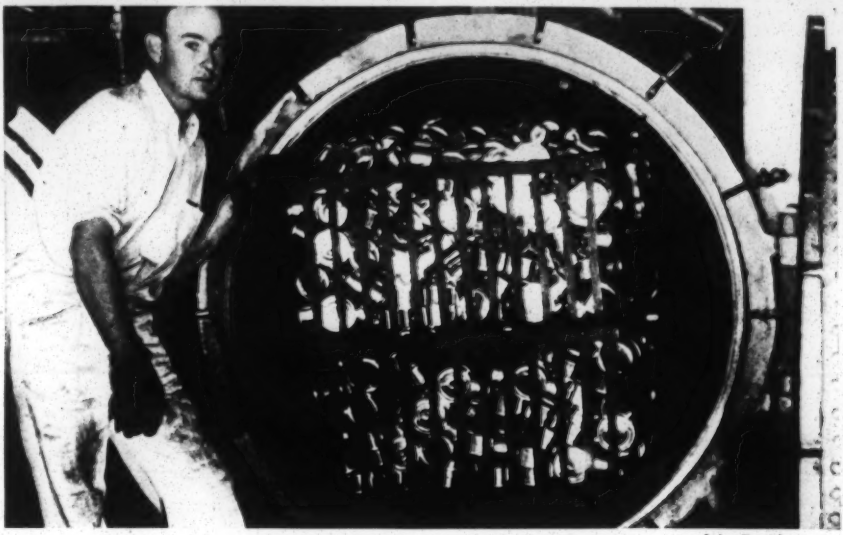
Ancestors of today's canned vegetables were the carrots in gravy, turnips, and parsnips put up in 1825-6 to save British explorers in the Arctic from scurvy. Now the most-tinned vegetable is the tomato, which Americans feared to eat until a century ago. Maryland began canning tomatoes before the Civil War, and remained the world center until the World War. Now the nation cans yearly about 25½ million cases of tomatoes, with half that amount of juice into the bargain. Second in volume are green peas, and third is corn, a favorite since Isaac Winslow set Maine to packing it a century ago.

The industrious immigrant Ezra Daggett, credited with bringing the preserving process from England to the United States in the decade following the War of 1812, settled in New York City and pioneered in canning sea-food, which by 1940 had become a 124-million-dollar industry (illustration, below).

After Nicholas Appert perfected his preserving methods to provision France's army, Peter Durand in England patented the "tin canister" in 1810. Peak production for early canisters, handmade, was 60 a day. Their name was borrowed from tea canisters, small "cane" or reed baskets, and shortened to "can" in the U. S.

Note: For more about tin cans and the foods packed in them, see in the *National Geographic Magazine*: "Revolution in Eating," March, 1942; and "Tin, the Cinderella Metal," November, 1940; and in the GEOGRAPHIC SCHOOL BULLETINS, "The 'All-American' Problem of Tin," October 28, 1940.

Bulletin No. 4, April 13, 1942.



John Degelman

AN UNKNOWN SARDINE SUBSTITUTE IN 1907, TUNA NOW RANKS AFTER SALMON

About 400 plants in 15 States and Alaska in 1940 canned nearly 700,000,000 pounds of sea food (5 pounds per U. S. inhabitant). Baltimore was already a center for canning oysters and Maine for lobsters, when California salmon canning was started in 1864 by Maine fishermen and one tinsmith. In 1878 began Alaska's salmon canning, by which the Territory repays its purchase price several times yearly. Salmon is now the leading canned fish. Shrimp-canning got under way in New Orleans in 1878. At the same time Maine started canning small herring as "sardines," using the name of a fish from Sardinia; California followed. Now the various small fish in flat sardine cans rank third on the tinned-fish list. When sardines were scarce in 1907, a California cannery tried the first tuna. Cooked once to remove its oil, then sealed in cans, the tuna is cooked again in a steam-heated oven (above) for that "sea-chicken" flavor.

NOVGOROD WAS RUSSIA'S "BIRTHPLACE"

Novgorod, which the Russians claim to have encircled, with its German invaders, was the first capital of the state of Old Russia. In the Kremlin of Novgorod stands a monument commemorating the 1,000th anniversary in 1862 of the founding of the Russian Empire on that site. The city grew from a settlement of Northmen led by a Scandinavian prince, Rurik. Finns called these bold warriors by a name which possibly was the origin of "Russi"—the Slav term that gave Russia its name. Rurik, invited in 862 to Novgorod to protect it, made the city the capital of the Kingdom of Novgorod, later part of Old Russia.

The kingdom extended the power of Novgorod (New-town) from the Baltic to the Volga and from the White Sea to the Dnepr River. The capital in the 14th century may have had 400,000 inhabitants. Today it is a small city with sawmills, and shoe, candle, and brick factories. It is situated on the navigable Volkhov River, two miles below Lake Ilmen, and 100 miles south of Leningrad.

Encircled by old walls, Novgorod, up to the time of the German invasion, preserved many relics of its medieval Golden Age, such as the Byzantine-style Sophia Cathedral within its massive Kremlin. Arab and Scandinavian chroniclers described its prominence, on the trade route from the Baltic to the Black Sea.

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Moulin from Ewing Galloway

KOBE LAUNCHED SOLDIERS AS WELL AS SHIPS

Japan's southern metropolis of Kobe is notable for the volume of its shipping (a third of the nation's foreign trade in normal times) and for its dockyards. Its spacious harbor on the sheltered Inland Sea (background) has nearly ten miles of waterfront; peacetime school classes used to visit the piers while studying geography and economics. They could see ships leave for America, the Philippines, China, Manchukuo, India, and Australia, now the wartime objectives of Japanese troop ships, submarines, and planes. Highly esteemed for its view of the harbor is the 16-acre park on top of a hill in the middle of the city—the Okura Recreation Grounds, photographed before the war. Adults on the hillcrest watch the distant shipping, while boys of high school age drill and smaller children look on. Beyond the drilling cadets, a Japanese baseball team waits to turn the drill ground into a ball diamond.

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